THE PLANKTON NEWS

THE NEWSLETTER OF THE SOUTHEAST PHYTOPLANKTON MONITORING NETWORK

Volume 4, Issue 3 November 2005

Letter from the Coordinator

The staff at SEPMN has had a busy summer and fall season. In July 2005, Julie and I traveled to Maui, Hawaii and conducted phytoplankton workshops for the educators at the Hawaiian Islands Humpback Whale National Marine Sanctuary and the National Marine Educators Association Conference. There were about 30 attendees at each workshop and participants were given several hands-on activities that centered on phytoplankton. A great time was had by all and the participants were very excited and enthusiastic about learning how to incorporate phytoplankton into their curriculum.

In July & August, SEPMN conducted its annual volunteer trainings in SC, GA, and NC. A total of 100 volunteers attended these workshops to get updated on the latest SEPMN monitoring protocols. In August, September, and October, Julie and I traveled all over SC, GA, FL, and NC to instruct students in grades 5 – 12 in phytoplankton monitoring. The numbers are still out but we estimate that more than 1000 students have been trained since August.

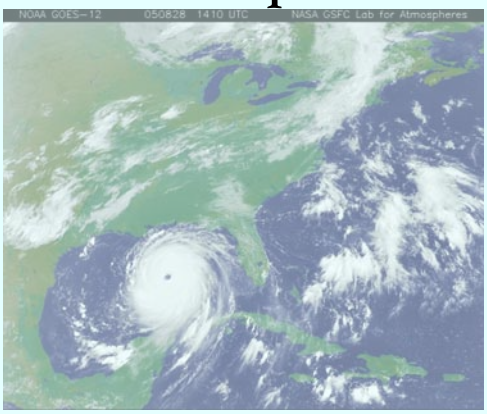
We recently returned from the Mid-Atlantic Marine Educators Association Annual Conference in Beaufort, NC where they conducted a recruitment workshop for NC and Maryland teachers. There are 12 active groups in NC and additional volunteers are welcome. By this time next year, we hope to have active groups in Maryland.

Special thanks go out to Terri Kirby Hathaway, NC liaison, and Margaret Olsen, GA liaison, for their assistance in making SEPMN an awesome program. Finally, we recognize that SEPMN would not exist without our volunteers. Thanks for all of your hard work!

See you out on the water,
Wendy

Photo by: Bill Birkemeier, US Army Corps of Engineers, Duck, NC

Marine Biotoxins Program Participates in Hurricane Katrina Response



Satellite Imagery of Hurricane Katrina courtesy of: http://www.globalsecurity.org/military/facility/new-orleans-

The National Oceanic & Atmospheric Administration (NOAA), the Environmental Protection Agency (EPA), the United States Geological Survey (USGS), and various other federal and state partners have initiated an integrated response to assess the environmental impacts of Hurricane Katrina. The object is to evaluate the ecological condition and trends of living marine resources in coastal Louisiana, Mississippi and Alabama.

The Marine Biotoxins Program in Charleston, SC is one of the laboratories participating in this response. A number of cruises are currently ongoing collecting different types of samples including phytoplankton. The phytoplankton samples will be used to determine the changes in species composition and diversity. A number of toxin-producing species such as *Karenia brevis*, *Alexandrium monilatum* and *Pseudo-nitzschia spp.* will be key indicators of changes in the phytoplankton tropic structure. Additional information on the integrated response to Katrina can be found at ***http://www.st.nmfs.noaa.gov/hurricane_katrina/***

Inside This Issue

Volunteer Spotlight

The Grand Strand Master Gardeners Association

Located in Georgetown and Horry Counties, SC, members of The Grand Strand Master Gardeners Association began monitoring for SEPMN in 2002. Gary Forrester, Cathy Smith, Clayton Bull, Fritz Vinson, and Bill Hamilton meet every Wednesday morning to sample 2 sites in Murrell's Inlet and 2 sites on Pawley's Island. Gary also occasionally monitors a site in Hog Inlet near North Myrtle Beach. The group examines their samples at the Clemson Extension Office in Georgetown, SC.

When asked why they got involved with SEPMN, Gary responded that they wanted a way to teach other gardeners how gardening practices can influence the aquatic environment. The group also stated that they like monitoring for SEPMN because of the anticipation of seeing something new and the "Wednesday Morning Social Club." The least favorite part of monitoring is conducting plankton tows during the winter when it is 25 degree Fahrenheit and raining. "Three minutes seem to last forever on those days."

When asked to name their favorite species, Gary responded for the group, "*Bacillaria spp.*, because it is so cool when it moves!" Cathy's favorite is Ditylum. Bill always seems to find strange things like Santa and Leprechauns in his samples. But then again, according to the group, Bill is a little strange. Many thanks to GSMGA; SEPMN and NOAA appreciate the work you do!

SEPMN Volunteer awarded the Marine Classroom Teacher of the Year

Margery Misenheimer was awarded the Marine Classroom Teacher of the Year Award at the Mid-Atlantic Marine Educators' Association Annual Conference in Beaufort, NC in October 2005. A 19-year veteran, Margery teaches 6th – 8th grade science at Smyrna Elementary School in Syrma, NC.

Margery has her hands full as she is responsible for teaching all sciences in all three grade levels. She provides various opportunities for students to actively participate in real science by getting them involved in wetland restoration projects, water quality monitoring programs, kayak trips, and SEPMN.

Congratulations to Margery Misenheimer! We are so proud of you!

Microscopy Workshop

SEPMN will be holding a one-day teacher workshop on light microscopy techniques on January 20, 2006. Topics to be covered include: introduction to microscopy and physics of light, techniques to increase resolution, specimen preparation, technology advancements, maintenance, and introduction to electron microscopy. This intensive workshop will be equivalent to a graduate level college course and teachers will receive text, lesson plans and handouts, as well as hands-on training on microscopes. The workshop will be limited to 16. Please contact Julie Cahill at Julie.Cahill@noaa.gov or 843-762-8657 for more information.

Calendar of Events

South Carolina Science Council (SC²)
Presentation Title: *Size Estimation*
Myrtle Beach, South Carolina (November 2 – 4, 2005)

Microscopy Workshop
Teacher Workshop at Hollings Marine Laboratory
Ft. Johnson Rd., Charleston, SC (January 20, 2006)

2006 Ocean Sciences Meeting
(http://www.agu.org/meetings/os06/)
Presentation Title: *Volunteers and Scientists Unite to Monitor Marine Phytoplankton and Harmful Algal Blooms*
Honolulu, Hawaii (February 20 – 24, 2006)

Species Spotlight

Karenia brevis

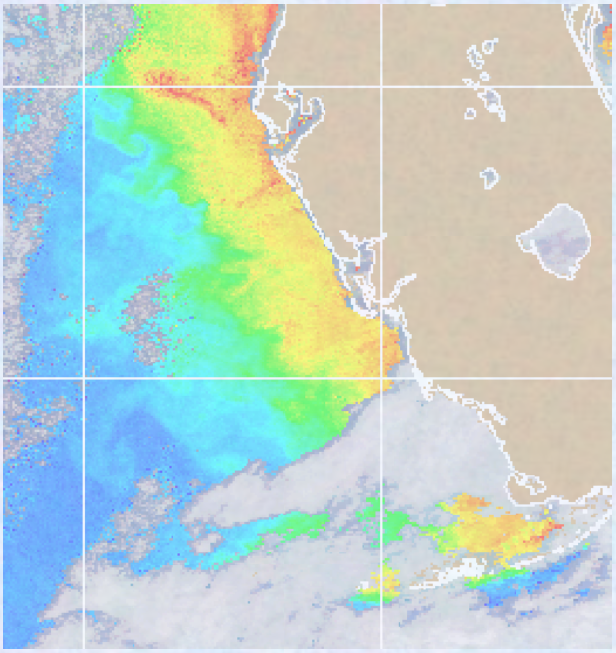
Karenia brevis are athecate (unarmored), photosynthetic dinoflagellates, found in the Gulf Coast in central and southwestern Florida. Blooms of this organism are often referred to as "red tides" due to the reddish-brown water discoloration that occurs during a bloom.

Each cell is typically 20 - 45 µm (micrometers) in length and 10 -15 µm in width. It has two flagella that propel it through the water, and contains a nucleus, chloroplasts, and other organelles. Athecate organisms, such a *K. brevis*, are very difficult to identify and often confused with other organisms from the Order Gymnodiniales because of their ability to change shape with changes in environmental conditions.

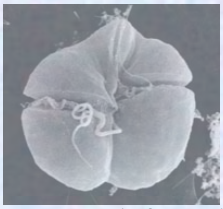
Massive fish and bird kills can be contributed to a toxin produced by *K. brevis* called brevetoxin. Brevetoxin can also contribute to shellfish contamination, marine animal mortalities, and human illnesses. Brevetoxins are tasteless and odorless; they cannot be easily detected or removed by any food preparation procedures such as cooking or cutting out contaminated shellfish tissue (VanDolah 2000). Humans are impacted by *K. brevis* blooms in 2 ways: neurotoxic shellfish poisoning or respiratory distress. Severe gastrointestinal affects such as nausea, vomiting, and diarrhea and possible neurological symptoms can result after ingesting contaminated shellfish. Inhaling the aerosolized form of *K. brevis* and its toxins can contribute to respiratory distress.

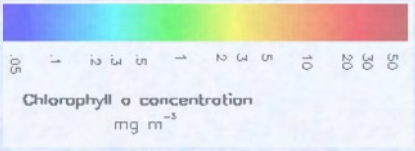
Blooms of *K. brevis* are currently being forecasted with the utilization of a satellite named SeaWiFS (Sea-viewing Wide-Field-of-View Sensor). This imagery is provided to state and local managers in Florida by a cooperative effort between the NOAA National Ocean Service and CoastWatch programs. The information, including the interpreted image, the last-known position of the red tide bloom, and the speed and direction of local winds, is e-mailed to managers. They can then use this bulletin to direct crews to the appropriate areas to take water samples. Only analysis of the water sample by microscope will determine whether red tide is present; the chlorophyll imagery is not sufficient to distinguish harmful from non-harmful algae. *(continued)*

Additional information regarding the NOAA red tide forecast is found at: ***http://www.csc.noaa.gov/crs/habf/***



Data from OrbImage Corp, processing by NOAA Coastwatch





For more information on *K. brevis*, check out the Florida Fish & Wildlife Research Institute web site at **www.floridamarine.org**

Source: *VanDolah, FM (2000). Marine algal toxins, origins, health effects, and their increased occurrence. Environmental Health Perspectives 108: 133-141*

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Direct all correspondence to:
Southeast Phytoplankton Monitoring Network (SEPMN)
NOAA /NOS/
Marine Biotoxins Program
219 Fort Johnson Rd.
Charleston, SC 29412
Phone (843) 762-8656
Phone (843) 762-8657
Fax (843) 762-8700

Project Lead
Steve Morton
Steve.Morton@noaa.gov

SEPMN Coordinator
Wendy Wicke
Wendy.Wicke@noaa.gov

Outreach Specialist
Julie Cahill
Julie.Cahill@noaa.gov

Web Site Design
Kimberly Nowocin
Kimberly.Nowocin@noaa.gov

Southeast Phytoplankton Monitoring Network (SEPMN)
NOAA/NOS/Marine Biotoxins Program
Center for Coastal Environmental Health and Biomolecular Research
219 Fort Johnson Road
Charleston, SC 29412